

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Withdrawn) Solid ion conductor, characterized in that it has a garnet-like crystal structure and that it has a higher ion conductivity than  $3.4 \times 10^{-6}$  S/cm.
2. (Withdrawn) Solid ion conductor, characterized in that it has a garnet-like crystal structure and that it has a stoichiometric composition which is formally derived by aliovalent substitution of  $\text{Li}_5\text{La}_3\text{M}_2\text{O}_{12}$  in which M is Nb or Ta.
3. (Currently Amended) [[Solid]] A solid ion conductor, characterized in that it has a garnet-like crystal structure and that it has a stoichiometric composition  $\text{L}_{5+x}\text{AyG}_z\text{M}_2\text{O}_{12}$ , wherein  
L is in each case independently an arbitrary preferably monovalent cation,  
A is in each case independently a monovalent, divalent, trivalent or tetravalent cation,  
G is in each case independently a monovalent, divalent, trivalent or tetravalent cation  
M is in each case independently a trivalent, tetravalent or pentavalent cation,  
 $0 < x \leq 2$ ,  $0 \leq y \leq 3$ ,  $0 \leq z \leq 3$  and  
wherein O can be partially or completely replaced by divalent and/or trivalent anions such as e.g.  $\text{N}^{3-}$ , and wherein at least one of A and G is a divalent cation.
4. (Withdrawn) Solid ion conductor as claimed in claim 1, wherein the stoichiometric composition is



and wherein

$0 < x \leq 1$ ,

L is a monovalent alkali metal cation,

A is a divalent metal cation,

G is a trivalent cation and  
M is a pentavalent cation.

5. (Previously Presented) Solid ion conductor as claimed in claim 3, wherein L is selected from Li, Na and K can in each case be the same or different.

6. (Original) Solid ion conductor as claimed in claim 5, wherein L is Li.

7. (Currently Amended) ~~Solid ion conductor as claimed in claim 3~~ A solid ion conductor, characterized in that it has a garnet-like crystal structure and that it has a stoichiometric composition  $L_{5+x}AyG_zM_2O_{12}$ , wherein  
L is in each case independently an arbitrary preferably monovalent cation,  
A is in each case independently a monovalent, divalent, trivalent or tetravalent cation,  
G is in each case independently a monovalent, divalent, trivalent or tetravalent cation  
M is in each case independently a trivalent, tetravalent or pentavalent cation,  
 $0 < x \leq 2$ ,  $0 \leq y \leq 3$ ,  $0 \leq z \leq 3$  and wherein O can be partially or completely replaced by divalent and/or trivalent anions such as e.g.  $N^{3-}$ , wherein A is selected from divalent cations preferably alkaline earth metal ions.

8. (Previously Presented) Solid ion conductor as claimed in claim 3, wherein M is selected from transition metal ions.

9. (Currently Amended) ~~Solid~~ The solid ion conductor as claimed in of claim [[3]] 7, wherein A is selected from Ca, Sr and/or Ba and wherein M is selected from Nb and Ta.

10. (Currently Amended) ~~Solid~~ The solid ion conductor as claimed in of claim [[8]] 7, wherein A is selected from Sr and Ba and wherein M is Ta.

11. (Previously Presented) Solid ion conductor as claimed in claim 3, characterized in that it is stable towards elemental lithium at lithium activities corresponding to a voltage of 5 V.

12. (Withdrawn) Process for producing a solid ion conductor as claimed in claim 1, characterized in that salts and/or oxides of L, A, G and M are reacted together.

13. (Withdrawn) Process as claimed in claim 12, characterized in that the reaction takes place in a solid phase reaction.

14. (Withdrawn) Process as claimed in claim 12 for the production of a solid ion conductor wherein the stoichiometric composition is



and wherein

$$0 < x < 1,$$

L is a monovalent alkali metal cation,

A is a divalent metal cation,

G is a trivalent cation and

M is a pentavalent cation,

characterized in that L and A are used in the form of nitrates, carbonates or hydroxides and are reacted with  $G_2O_3$  and  $M_2O_5$ .

15. (Withdrawn) Process as claimed in claim 12, which comprises the following steps:

- (a) mixing the starting materials and ball-milling, preferably using zirconium oxide balls in 2-propanol,
- (b) heating the mixture from (a) in air for 2-10 h to 400-1000°C;
- (c) ball-milling, preferably using zirconium balls in 2-propanol;
- (d) pressing the mixture with isostatic pressure into pellets; and
- (e) sintering the pellets covered with a powder of the same composition for 10-

50 h at 700-1200°C.

16. (Withdrawn) Process as claimed in claim 15, wherein  
in step (b) the mixture is heated for 6 h to 700°C; and  
in step (e) the pellets are sintered for 24 h at 900°C.

17. (Withdrawn) Use of a solid ion conductor as claimed in claim 1 in batteries,  
accumulators, supercaps, fuel cells, sensors and/or electrochromic devices such as  
windows, screens and facades.

18. (Withdrawn) Use as claimed in claim 17, wherein the solid ion conductor is used  
in the form of pellets, as a thin layer, in a crystalline or amorphous foil.

19. (New) A solid ion conductor that has a garnet-like crystal structure and a  
stoichiometric composition  $L_{5+x}AyG_zM_2O_{12}$ , wherein  
L is in each case independently an arbitrary preferably monovalent cation,  
A is in each case independently a monovalent, divalent, trivalent or tetravalent cation,  
G is in each case independently a monovalent, divalent, trivalent or tetravalent cation  
M is in each case independently a trivalent, tetravalent or pentavalent cation,  
 $1 \leq x \leq 2$ ,  $0 \leq y \leq 3$ ,  $0 \leq z \leq 3$  and wherein O can be partially or completely replaced by  
divalent and/or trivalent anions such as e.g.  $N^{3-}$ .

20. (New) A process for producing a solid ion carrier that has a garnet-like crystal  
structure and that has a stoichiometric composition  $L_{5+x}AyG_zM_2O_{12}$ , wherein  
L is in each case independently an arbitrary preferably monovalent cation,  
A is in each case independently a monovalent, divalent, trivalent or tetravalent cation,  
G is in each case independently a monovalent, divalent, trivalent or tetravalent cation  
M is in each case independently a trivalent, tetravalent or pentavalent cation,  
 $0 < x \leq 2$ ,  $0 \leq y \leq 3$ ,  $0 \leq z \leq 3$  and wherein O can be partially or completely replaced

by divalent and/or trivalent anions such as e.g.  $N^{3-}$ , and wherein at least one of A and G is a divalent cation, comprising the steps of

- (a) reacting salts and/or oxides of L, A, G, and M by mixing to form a reaction mixture;
- (b) ball-milling, preferably using zirconium oxide balls in 2-propanol;
- (c) heating the mixture from (a) in air for 2-10 hours to 400-1000°C;
- (d) ball-milling, preferably using zirconium balls in 2-propanol;
- (e) pressing the mixture with isostatic pressure into pellets; and
- (f) sintering the pellets covered with a powder of the same composition for 10-50 hours at 700-1200°C.

21. (New) A process for producing a solid ion carrier that has a garnet-like crystal structure and that has a stoichiometric composition  $L_{5+x}AyG_zM_2O_{12}$ , wherein L is in each case independently an arbitrary preferably monovalent cation, A is in each case independently a monovalent, divalent, trivalent or tetravalent cation, G is in each case independently a monovalent, divalent, trivalent or tetravalent cation M is in each case independently a trivalent, tetravalent or pentavalent cation,  $0 < x \leq 2$ ,  $0 \leq y \leq 3$ ,  $0 \leq z \leq 3$  and wherein O can be partially or completely replaced by divalent and/or trivalent anions such as e.g.  $N^{3-}$ , and wherein A is selected from divalent cations preferably alkaline earth metal ions, comprising the steps of

- (a) reacting salts and/or oxides of L, A, G, and M by mixing to form a reaction mixture;
- (b) ball-milling, preferably using zirconium oxide balls in 2-propanol;
- (c) heating the mixture from (a) in air for 2-10 hours to 400-1000°C;
- (d) ball-milling, preferably using zirconium balls in 2-propanol;
- (e) pressing the mixture with isostatic pressure into pellets; and
- (f) sintering the pellets covered with a powder of the same composition for 10-50 hours at 700-1200°C.